



# LEWS NEWS



Photo: Angela Boyer, USFWS

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## Protecting Lake Erie's Natural Heritage

### Telemetry Study Update

This summer, researchers from Northern Illinois University returned to the islands for the third year of the Lake Erie water snake (LEWS) telemetry study. The LEWS, a Federal threatened and State endangered species, is found only in the western basin of Lake Erie. Field work from March through mid-May focused primarily on locating telemetered Lake Erie water snakes as they emerged from hibernation. In addition, radio transmitters were surgically implanted into 5 additional Lake Erie water snakes on 2 June 2002. This was possible because transmitters with at least a year of remaining battery life had been recovered from dead water snakes during the previous year.

Fieldwork conducted in late-May and early-June 2002 focused primarily on censusing adult Lake Erie water snake population size. The U.S. Fish and Wildlife Service is in the process of writing a recovery plan for the snake. This plan will identify the requirements for removing the snake from the threatened species list. One of the requirements will be a specific population size, and the information needed to calculate this population size will be obtained from the censuses completed over the past few years. Census efforts were quite successful during spring 2002; a total of 925 adult water snakes were captured and released at 15 study sites on Kelleys and the Bass Islands. New estimates of adult

population size generated using these data are generally consistent with other recent estimates.

Fieldwork since early June 2002 focused primarily on monitoring movement patterns of telemetered snakes. By keeping track of where and how often individual snakes are moving, researchers can further understand snake behavior, leading to a better grasp of how human activities might impact the snake. Assessment of this information will also aid in completing the Recovery Plan.

An interesting observation was made this summer related to movement patterns of snakes. A female Lake Erie water snake that was marked with a PIT tag (see page 4) on the south shore of Kelleys Island on 18 May 2001 was recaptured on Middle Island (a small Canadian island north of Kelleys Island) on 23 May 2002 by officials of the Ontario Ministry of Natural Resources. Two snakes were previously documented to have moved between Sugar and Middle Bass Islands. This new observation further documents occasional inter-island movements by Lake Erie water snakes. Researchers are not sure how the snake got from Kelleys to Middle Island; it may have swum or hitched a ride with an unsuspecting boater.

Also related to movement patterns is the news that Lake Erie water snakes have returned to Green Island! Lake Erie water snakes are known from

Green Island based on specimens collected there in 1930 and 1948; however, no water snakes were found on this island during repeated searches in the 1980's and early 1990's. During a visit to the island on 25 June 2002, Ohio Department of Natural Resources, Division of Wildlife personnel reported counting 20 individual Lake Erie water snakes on the rocky shore, inland, and foraging just offshore. This observation suggests that Lake Erie water snakes have recolonized this island after an absence of 10 or more years. Please see the related article on page 4 of this issue.

Monitoring of telemetered snakes will continue through the summer and fall of 2002, and spring of 2003 to obtain additional information on movement patterns and hibernation sites. Intensive census work aimed at refining current population estimates will again be conducted in late May and early June 2003. It is anticipated that when completed, data from telemetered snakes and population censuses will also provide a better estimate of the life span of adult snakes.

--Dr. Rich King, Northern Illinois University



A LEWS swims near shore. Photo: Kristin Stanford, NIU

### Considering a New Dock?

As many people already know, certain types of docks provide summer basking habitat for LEWS. Specifically, timber and steel crib docks have become a favorite resting spot for snakes on many islands. Snakes using these structures are close to the water and, should danger approach, have available cover among the rocks in the interior of the structure.

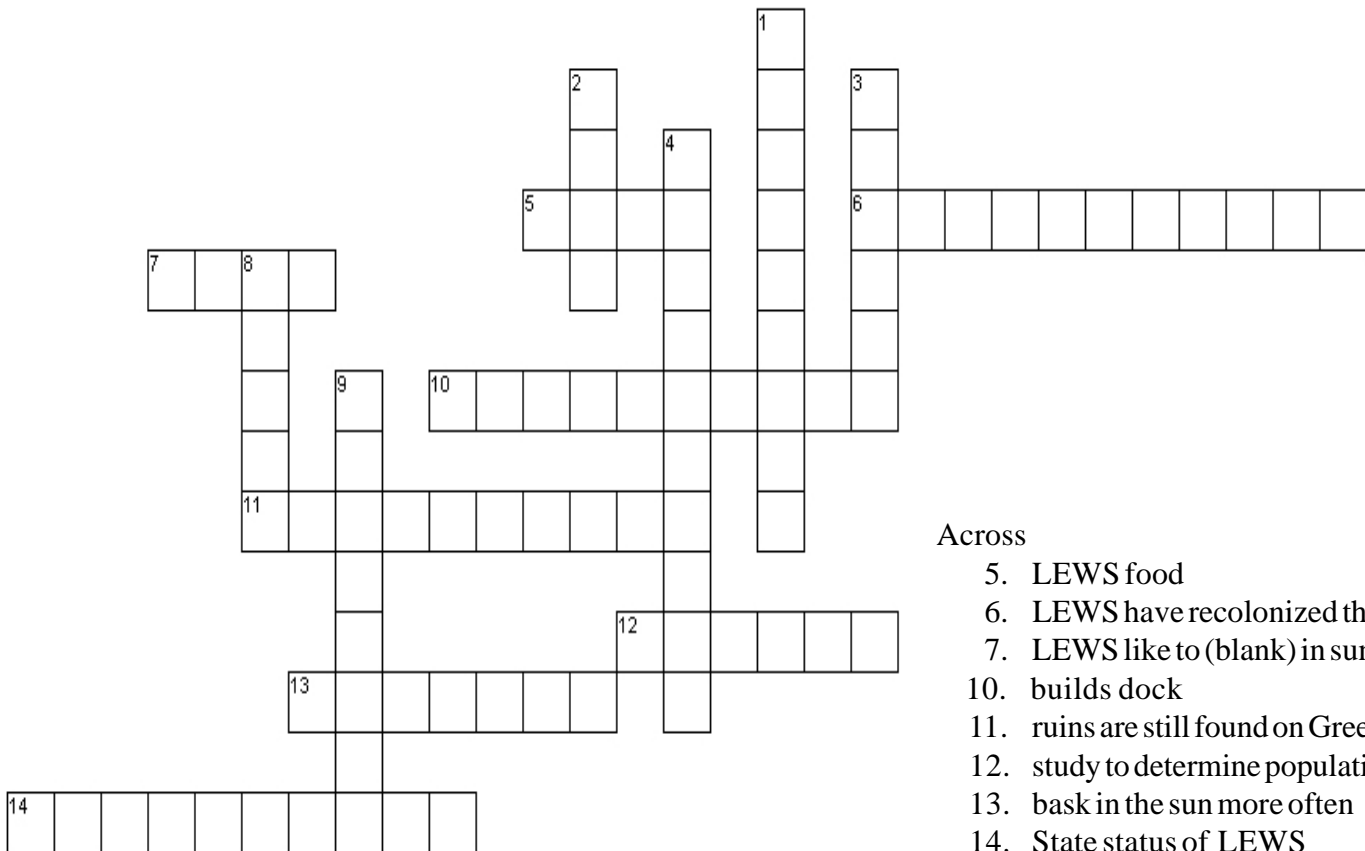
Steel crib docks filled with rock and topped with concrete are becoming common sights on all of the islands because of their aesthetic design and durability against wave action and ice. Engineers who design the structures say that docks with sound design and construction, including a 12-inch thick concrete cap on the top, can last up to 30 years. The building process, though, is not cheap. One estimate for a 10-foot wide by 40-foot long steel crib dock totaled approximately \$25,000, including permits, design, and construction. Typically, planning for docks

should begin at least one year in advance of the installation date. This will allow enough time to obtain the necessary permits from the U.S. Army Corps of Engineers, Ohio EPA, and Ohio Department of Natural Resources. It is the responsibility of the landowner to obtain the permits; however, the project engineer will often help prepare the necessary applications. Certain things to consider in the design include the size, shape, location, depth of water, substrate (bottom material), and anticipated force of waves and ice. All of these factors can play into the total cost of the structure. A certified engineer should design the dock to ensure that it is structurally sound. The engineer may also help complete the permit applications, and can often recommend a contractor to build the structure. Contractors can build small docks in a few days, and larger docks in a week or two.

--Megan Seymour, Wildlife Biologist, USFWS

## LEWS Clues!

Use the articles in this issue of LEWS News to find the answers to this crossword puzzle! The first 10 people to mail this page back to the U.S. Fish and Wildlife Service (see return address) with all the correct answers will win a copy of "A Guide to Ohio Streams," a full-color book that explores our streams, the wildlife that live in them, and current issues affecting our water resources.



### Across

5. LEWS food
6. LEWS have recolonized this area
7. LEWS like to (blank) in sun
10. builds dock
11. ruins are still found on Green Island
12. study to determine population size
13. bask in the sun more often
14. State status of LEWS

### Down

1. Study that tracks snake movement
2. dock that provides snake habitat
3. females are (blank) than males
4. Federal status of LEWS
8. these shells blanket Green Island
9. designs dock



Adult female LEWS on Green Island. Photo: Angela Boyer, USFWS



## Green Island, Past and Present

We row up to a low spot on the shore of Green Island. We are welcomed by a swarm of biting black flies, and almost immediately wish we had worn long pants, despite the stifling heat. We are here to search for Lake Erie water snakes (LEWS), but sightseeing is high on the priority list, too. During this rare opportunity to visit Green Island, a State owned and managed wildlife refuge with no public access, we will be taking in as much as we can. We scramble up the side of the island, composed of limestone bluffs covered with vegetation and lots of poison ivy. At the top of the bluff, the island is thick with young trees. Amidst the trees on the western side of the island, one can glimpse the skeletal ruins of the old stone lighthouse, now long abandoned. Winding through the trees and overgrown vegetation, the only sign of human occupation on the rest of the island is a long, narrow, perfectly straight sidewalk, no beginning or end in sight, leading from the ruins to a long-lost boathouse. Land snail shells blanket the ground, trees and vegetation grow thick, and the sounds of bird calls and crashing waves fill the air. An occasional antiquated pop bottle protrudes from below the leaf litter. We can't help but feel like we are intruding into some ghost-town-turned-jungle. This is Green Island, home to birds, snails, and the Lake Erie water snake!

Researchers and biologists have confirmed that Lake Erie water snakes have returned to Green Island, a 17.1-acre island located just 1 mile west of South Bass Island. Most of Green Island is owned by the Ohio Department of Natural Resources, Division of Wildlife, who manages it as a wildlife refuge. Surveys of the island in the 1930's and 1940's identified LEWS on the island; however, repeated surveys in the 1980's and 1990's found that the snake had been extirpated (or had disappeared). On a visit to the island this July, researchers captured 10 Lake Erie water snakes and implanted them with PIT tags, and observed 9 more snakes that were not captured. A PIT tag is

a rice-sized microchip with a unique electromagnetic code. When a hand-held scanner is waved over a PIT-tagged snake, the scanner displays the code, which the researcher can then use to identify when and where the snake was previously caught. This allows researchers to keep track of the movement patterns of individual snakes over long periods of time. The majority of snakes caught on the island were females. Females are more likely to be basking at this time of year, because they need the heat of the sun to digest their food and for growth and development of their young. Scientists can only guess why the snakes may have disappeared from the island, or why they have now returned. Small islands are highly susceptible to extinction events, meaning that one drastic event can wipe out an entire population. Recent increases in the LEWS population at South Bass Island State Park could have resulted in snakes immigrating to Green Island and establishing a reproducing population. Although we do not always understand the snakes' behavior, one thing is certain, LEWS have returned to Green Island!



The Green Island Lighthouse, circa 1930...



Snakes aren't the only creatures to inhabit the island; cormorants, gulls, herons, and other birds also call Green Island home, as do an inordinate amount of land snails. Mammals such as mice, raccoons, and deer may also be found there. Even fish are attracted to the island! The waters surrounding Green Island are known to be some of the most productive walleye waters in the entire lake.

Green Island is not just rich in natural history; it has an important place in cultural history, too. The island, along with Middle and South Bass, were originally owned by the Edwards family of Connecticut. In 1851, the United States government purchased the island from the Edwards to construct a lighthouse on the property. Since then, the island's lighthouses have guided boaters safely around the dangerous land mass. The first lighthouse on Green Island was built in 1855 and was tended by Col. Charles Drake, who lived in the house adjacent to the lighthouse. During a severe New Years Eve storm in 1863, the wooden lighthouse caught fire and was destroyed. The



Green Island from afar, with the current light tower visible on the right side of the island. Photo: Angela Boyer, USFWS

lighthouse was later rebuilt with stone in 1865, and remained in operation until 1939. The structure, whose crumbling remains are still present, was later gutted by a fire set by vandals. It was added to the National Register of Historic Places in 1990. An automatic light tower was built in 1939 to replace the stone lighthouse, and still operates today.

In 1961, the U.S. Government's General Services Administration turned over 15.8 acres of the island to the Ohio Department of Natural Resources, Division of Wildlife, who now manages the land as a wildlife refuge. The remaining 1.3 acres of the island, including the automatic light, are owned by the U.S. Coast Guard. The State has a "hands-off" management policy for the island, and is letting it revert to a natural state. The island's interior is now mostly composed of trees and undergrowth, while portions of the shoreline contain alvar habitat—limestone bedrock and unique vegetation that can grow right out of the rock, even in the absence of soil. The current management of Green Island allows a glimpse of the island as it must have looked before settlers first arrived—teeming with wildlife and vegetation.

Information for this article was obtained from: [www.middlebass.org/index.shtml](http://www.middlebass.org/index.shtml), and McCormick, Jack. 1964. Forest of Green Island, Ohio. Jack McCormick & Associates, Inc., Devon, PA.



Photo: Angela Boyer, USFWS

...and today.

--Megan Seymour, Wildlife Biologist, USFWS

### Snake Check-up

Can you tell a male snake from a female? Newborn snakes, and even one- and two-year olds, are almost impossible to tell apart based on appearance. Once snakes reach adulthood, though, their sex becomes more obvious. Females are much bigger than males because they must carry many baby snakes for several months before giving birth. Typically, females are longer and much thicker around than males. Both males and females need to bask in the sun in order to digest the fish that they eat. Females will bask more often than males because they also need the sun's warmth to help their young grow.



Researchers scour the alvar habitat of Green Island in search of LEWS. Photo: Angela Boyer, USFWS



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